

THE ASSESSMENT AND MANAGEMENT OF POST-PROSTATECTOMY STRESS URINARY INCONTINENCE

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ABSTRACT

Urinary incontinence remains one of the most significant complications of radical prostatectomy, known as post-prostatectomy incontinence (PPI), can have profound effects on quality of life. The correct diagnosis is critical, and the urodynamic cause of incontinence established as either stress urinary incontinence or detrusor overactivity. Patient evaluation should also include the use of quality of life questionnaires to assess severity of symptoms and a quantitative pad weight or pad usage assessment. Treatment regimes should incorporate conservative measures pelvic floor exercises, and then failing this, a discussion of the more invasive therapies, including bulking injections, the artificial urinary sphincter or the male suburethral sling. All of these options should be discussed carefully with the patient, including success rates of outcomes and potential adverse effects of treatment.

Key words: Radical prostatectomy, urinary incontinence, post-prostatectomy incontinence, assessment, stress urinary incontinence, detrusor overactivity, management.

INTRODUCTION

Urinary incontinence remains one of the most significant complications of radical prostatectomy, and is known as post-prostatectomy incontinence (PPI). This clearly has negative quality of life implications for men, and is noted to be a major barrier to social recreation, physical activity and subsequent mental health affects including anxiety and depression (1).

The incidence and severity of the resultant incontinence varies, with no fixed definition. The definition of continence, tends to describe those wearing 1 or less pads over 24 hours. Incontinence can be based on quantity of pad use, to various scores using patient reported outcome measures (PROMs) such as the International Consultation on Urinary Incontinence Short Form series (ICIQ-UI SF) or on Male Lower Urinary Tract Symptoms Long Form (ICIQ-MLUTS LF) (2). Rates of PPI have been quoted to range from 6% to 69% according to the various definitions. Risk factors identified to increase this include age, higher body mass index as well as technical features of the surgery and surgeon experience (3). The Prostate Cancer Outcomes study, followed 1291 men after radical prostatectomy and at 18 months identified 8.4% of men were incontinent, although only 32% had 'total urinary control' (4). The rates of continence at best after open prostatectomy are quoted at upto 92%, and up to 96% after laparoscopic or robotic techniques (5).

The pathophysiology of urinary incontinence, tends to be due to intrinsic sphincter deficiency secondary to the loss of function of the external sphincter complex. The external sphincter is understood to have slow twitch striated fibres, which along with smooth muscle fibres provides baseline continence, whilst the fast twitch striated fibres which with rapid recruitment allow voluntary disruption of urinary flow (3). Therefore baseline continence can be impaired, and at times of striated muscle fibre exhaustion (for example during longer physical activity over the day) further incontinence episodes can also ensue.

DIAGNOSIS

The first part of the assessment is with a full medical history and physical examination. Triggers for the urinary incontinence may include coughing, moving into an upright position, sports, and the absence of night-time continence.

Validated assessment tools ICIQ-UISF and ICIQ-MLUTS can be used to provide an objective assessment of the patient's symptom severity (6). A voiding diary should be completed, to document voided volumes and episodes of leakage, and whether there is any element of overactive bladder. The number of pads worn per day correlates well with the 24-pad weight (7), although the 24-pad weight is felt to be the most accurate form of assessment of involuntary urine loss (3). Arbitrary ranges for 24hours pad weight can be used such as <100g as mild, 100-300g as moderate and >300g as severe, however no official cut-off values have been defined.

Basic diagnostic tests should also include a urinalysis to exclude infection or haematuria, and an post void ultrasound of the bladder to determine any residual urine volumes (8). Urethroscopy is also recommended to assess for any evident bladder neck stenosis or urethral stricture that may be sustaining some level of continence, which once dilated may worsen stress urinary incontinence (SUI), which patients must be warned off. During urethroscopy, sphincter assessment can be performed whereby the functional sphincter length (coaptive zone) could if demonstrated suggest suitability for retrourethral transobturator male sling insertion (9).

Urodynamic evaluation is recommended, to distinguish the cause of urinary incontinence and determine whether there is any element of detrusor overactivity (8). The ability of the test to predict outcome of surgery for SUI is uncertain. There has been some small level evidence to suggest that a valsalva leak point pressure (VLPP) of >100cmH₂O has a high predictability for post-operative success with the AdVance male sling (3). Some tests to assess sphincter function such as urethral pressure profiles or retrograde leak point pressures are also of use to diagnose sphincter incompetence. Urodynamics however should be carried out using the standards laid out by the International Continence Society (ICS) document 'Good Medical Practice' (10).

Once a correct diagnosis has been made, and the severity of the patients symptoms and bother has been established, further treatment can be planned.

CONSERVATIVE MANAGEMENT

Lifestyle measures include the restriction of bladder irritants such as caffeine, reduced fluid intake when out, timed voiding

and the use of penile clamps. Electrical stimulation of the pelvic floor is not currently recommended for male SUI (3). Other lifestyle interventions include supervised pelvic floor muscular training (PFMT), which is recommended for all men post-operatively to hasten recovery of continence (8). PFMT has been shown in large randomised clinical trials to improve continence rates in the short to long term (11). PFMT must be performed to at least over three sets of 10 repetitions of muscle training daily.

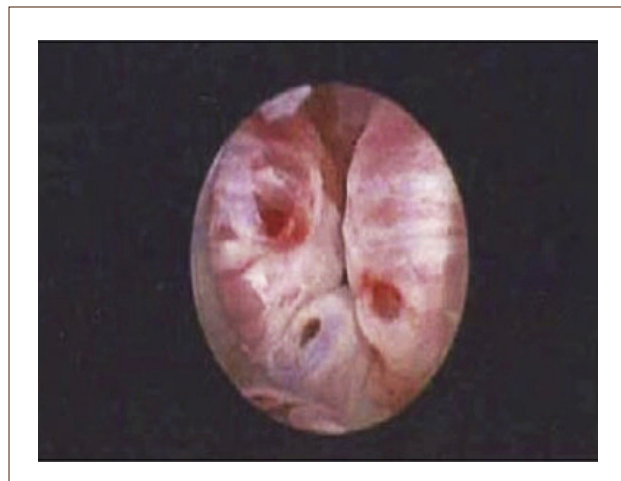
With regards to pharmacotherapy, antimuscarinics can be used to treat predominant overactive symptoms (OAB). In mixed urinary incontinence, the most bothersome symptom complex should be treated first. There is low level evidence that drug treatment for male SUI using duloxetine, a serotonin-nor-adrenaline reuptake inhibitor, may be of use with a reduction of incontinence in a small randomised study of 31 patients against placebo (12). However this form of treatment should be considered as a system of temporary symptom relief rather than a cure. There is some evidence to suggest that duloxetine may have synergistic properties when combined with PFMT.

SURGICAL TREATMENT FOR MALE SUI

Bulking agents

The most minimally invasive option of peri-urethral bulking using collagen, offers patients symptomatic improvement, but is seen more as a short term option, with little durability (See figure 1). A review of 322 men, showed that although having significant symptomatic improvement, men were still wearing upto 3 pads a day and by 40months follow-up, the average number of repeated treatments was 4 (13). Bulking agents should therefore not be offered to patients with severe SUI, but to patients with mild to moderate SUI, with the understanding that this would provide temporary symptomatic relief.

FIGURE 1. Image of urethral bulking post injection. Good coaptation of urethral walls seen



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